SPEKTOR, Sh.Sh.

Preventing explosions in asphalt stills. Neftianik 2 no.5: 16-17 My '57. (MLRA 10:5)

1. Nachal'nik proizvodstvennogo otdela ob"yedineniya Azneftezavody.
(Asphalt) (Explosions)

SPEKTOR, Sh. Sh.: Master Tech Sci (diss) -- "The technology of compounding petroleum products by the method of a free (submerged) stream". Baku, 1959. 8 pp (Azerb Order of Labor Red Banner Industrial Inst im M. Azizbekov), 150 copies (KL, No 15, 1959, 117)

ISMAILOV, R.G.; SPEKTOR, Sh.Sh.

Selecting a flow diagram for oil rectification in primary distillation apparatus. Azerb. neft. khoz. 38 no.7:39-40 Jl '59.
(MIRA 13:2)

(Distillation apparatus)

SPEKTOR, Shemariy Shimonovich; ISMAYLOV, R.G., prof., red.; SHTEYNGEL', A.S., red.izd-va

[Using the energy of free submerged jets for compounding petroleum products; based on the experience of the Baku petroleum refineries] Ispol'zovanie energii svobodnoi (zatoplennoi) strui dlia kompaundirovaniia nefteproduktov; iz opyta bakinskikh neftepererabatyvaiushchikh zavodov. Red.R.G.Ismailov. Baku, Azerbaidzhanskoe gos.izd-vo neft. i nauchno-tekhn.lit-ry, 1960. 86 p. (MIRA 14:2)

1. Chlen-korrespondent AN Azerbaydzhanskoy SSR (for Ismaylov).
(Petroleum products)

GRUSHKO, O.L.; SPEKTOR, Sh.Sh.

Improving sulfuric acid refining of lubricants in old installations. Azerb. neft. khoz. 39 no.10:36-38 O '60. (MIRA 13:11)
(Lubrication and lubricants)

CHERNOZHUKOV, N.I., doktor tekhn. nauk, prof., nauchnyy red.; ZHERDEVA, L.G., red.; IVANOVA, L.V., red.; ISAGULYANTS, V.I., red.; ISMAILOV, R.G., red.; KREYN, S.E., red.; KULIYEV, A.M., red.; MAMEDOV, M.A., red.; PAPOK, K.K., red.; SPEKTOR, Sh.Sh., red.; FEDOTOVA. A.F., red.; SHKHIYAN, S.Kh., red.; LEVINA, Ye.S., ved. red.; POLOSINA, A.S., tekhn. red.

[Improvement of the quality and the production of lubricating oils] Uluchshenie kachestva i sovershenstvovanie proizvodstva smazochnykh masel; trudy. Moskva, Gostoptekhizdat, 1963. 255 p. (MIRA 16:6)

1. Vsesoyuznoye soveshchaniye po uluchsheniyu kachestva bakinskikh smazochnykh masel i usovershenstvovaniyu tekhnologii ikh proizvodstva, Baku, 1961. (Lubrication and lubricants)

KASUMZADE, N.G.; TER-SAAKOV, B.U.; MAMEDOV, M.A.; ARAKELOV, A.S.; SPEKTOR~~, Sh.Sh.;~~ NEGREYEV, V.F., red.; ZEYNALOVA, T.Z., red. izd-va; AKHMEDOV, S., tekhn. red.

[Protection of apparatus and equipment of petroleum refineries from corrosion]Zashchita apparatury i oborudovaniia neftepererabatyvaiushchikh zavodov ot korrozii. [By] N.G. Kasumzade i dr. Baku, Azerneshr. 1962. 282 p. (MIRA15:9)

(Petroleum refineries—Equipment and supplies)

(Corrosion and anticorrosives)

S/081/62/000/021/040/069
B171/B101

AUTHOR: Spektor, Sh. Sh.

TITLE: Compounding rates for petroleum products

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1962, 396-397, abstract 21M100 (Novosti neft. i gaz. tekhn. Neftepererabotka i neftekhimiya, no. 2, 1962, 22-26)

TEXT: The author gives data on compounding of petroleum products obtained by adjusting the rates at which components are pumped into a container. The mixing energy is taken from that of deformation of the free stream (DFS) of the liquid if the density of the latter differs from the density of the medium surrounding it in the container. Experience in the Baku plants has shown that when the DFS is established in the process of continuous filling of tanks, turbulent mixing occurs throughout working volume of the container. The process of compounding with the energy of DFS makes it possible to dispense with building of special mixing tanks and equipment. Moreover, this method, which needs no complementary equipment, moving parts or proportioning devices, can be combined with the

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Compounding rates for petroleum ...

S/081/62/000/021/040/069
B171/B101

usual filling of storage or transport capacities. [Abstracter's note: Complete translation.]

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SPEKTOR, Sh.Sh.

Effective utilization of the energy of a free jet for compounding petroleum products. Khim.i tekh.topl.i masel 7 no.9:56-60 S '62. (MIRA 15:8)

1. Sovet narodnogo khozyaystva Azerbaydzhanskoy SSR.
(Petroleum products)

ISMAILOV, R.G.; MAMEDOV, M.A.; SPEKTOR, Sh.Sh.

Increasing the production capacities of units in petroleum refineries of Azerbaijan. Khim.i tekh.topl. i masel 7 no.11:5-7 N '62. (MIRA 15:12)
(Azerbaijan—Petroleum refineries—Equipment and supplies)

GUSEYNOV, Dzhebrail Alkperovich, prof.; SPEKTOR, Shemariy Shimanovich, kand. tekhn. nauk; VAYNNER, Lev Zelikovich, inzh.; TREGUBOVA, I.A., dots., retsenzent; KLEYMENOVA, K.F., ved. red.

[Technological calculations of petroleum refining processes] Tekhnologicheskie raschety protsessov pererabotki nefti. Moskva, Khimiia, 1964. 307 p. (MIRA 18:1)

ISMAILOV, R.G.; SPEKTOR, Sh.Sh., red.

[Industrial refining of petroleum and the development of petrochemistry in the Azerbaijan S.S.R.] Promyshlennaia pererabotka nefti i razvitie neftekhimii (v Azerbaidzhanskoi SSR). Baku, Azerbaidzhanskoe gos. izd-vo, 1964. 385 p. (MIRA 17:12)

ISMAILOV, R.G.; MAMEDOV, M.A.; SPEKTOR, Sh.Sh.; IVANOVA, L.V.;
KORNEYEV, M.I.; SULTANOV, Z.A.; SHCHELKONOGOV, I.A.

Petroleum refining industry of Azerbaijan on the threshold of a glorious jubilee. Khim. i tekh. topl. i masel 9 no.11:15-19 N '64 (MIRA 18:1)

L 01806-67 EWT(m)/T DJ

ACC NR: AP6030589 (AN) SOURCE CODE: UR/0413/66/000/016/0073/0073 44 B

INVENTOR: Ismailov, R. G. A. O.; Mamedov, M. A. A. O.; Spektor, Sh. Sh.; Kyazimov, Seidov, M. M. M. O.; Vartapetov, A. A.; Shchelkonogov, I. A.; Kesel'man, L. G.; Lobanov, A. A. O.; Aliyev, A. A. G. O.; Tangiyeva, T. A.; Bombandirov, P. P.; V. V.; Chikunov, V. A.; Blidchenko, I. F.; Tarumov, G. A.; Merkur'yev, G. D.; Petrov, S. A.

ORG: none

TITLE: Lubricating oil for bushings. Class 23, No. 184997

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 73

TOPIC TAGS: lubricant, bushing, petroleum

ABSTRACT: An Author Certificate has been issued describing a lubricant for bushings, with a solar fraction and mazut base. To expand the operating temperature range of the oil, a petroleum fraction with a boil-away of 4—5% at 240—320C is added to the lubricant. This fraction is obtained from the petroleum distillate at 300—310C. [Translation] [NT]

SUB CODE: 11/ SUBM DATE: 05Nov64/ UDC: 629. 11. 012. 26

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

12

CA

Determination of tin in food products. A. G. Bosin and S. B. Spektor. *Voprosy Pitaniya* 7, No. 2, 87-94(1938); *Khim. Referat. Zhur.* 2, No. 1, 70(1939). The method of Owe (cf. *C. A.* 17, 3145) for the detn. of Sn in food products contains a no. of defects. In the process of mineralization (which requires a considerable length of time) a partial loss of Sn takes place. A dry method of ashing the sample is proposed, by which smaller samples can be used. The ash is treated with a 25% soln. of HCl, the Sn is reduced with Al, KI is added to the soln., and the soln. is titrated with $K_2Cr_2O_7$ in the presence of starch. The accuracy of the method reaches 95% of the theoretical. Another method for the detn. of Sn is also proposed which is based on the fact that the sulfide is treated with a standard I soln., excess of which is titrated with $Na_2S_2O_3$.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

12

Determination of total and free sulfurous acid in food-stuffs. S. E. Spekter. *Voprosy Pitaniya* 9, No. 6, 46-53(1940); *Chem. Zentr.* 1941, II, 2154.—To det. total SO_2 add 100-150 cc. water and 10-20 cc. H_3PO_4 to 25-40 g. of the dried, ground foodstuff sample. Pass through the mixt. a rapid flow of CO_2 for 7-8 min. and distil for 20-30 min. under heating and in a CO_2 current. Collect the distillate in 25-50 cc. of 0.02 *N* I soln., evap. to 15-20 cc., cool and add 20-30 cc. of a soln. of 8 g./l. benzidine chloride and 10 cc./l. HCl. Sep. the ppt. by centrifuging or filtering, wash with 5% alc. till a neutral reaction with 0.04% Br-phenol blue soln. is obtained, take up in 50 cc. water, contg. phenolphthalein, and titrate with 0.01 *N* NaOH or KOH till it gives a weakly pink or, after boiling 1 min., a stable pink coloring. One cc. of NaOH corresponds to 0.00032 g. SO_2. If the SO_2 content of the sample is high, a 0.1 *N* NaOH soln. is used. Error: ±7%. To det. free SO_2 connect 3 Drexler flasks in series with a water-jet pump. Place in the 1st or 3rd flask 20-30 cc. of 0.02 *N* I soln. or 25-30 cc. of freshly prepd. alk. pyrogallol soln. and in the 2nd flask an aq. suspension of the sample. Turn on the pump and heat the sample on a water bath to 40°. Thereby the entering air is deprived of O_2 by pyrogallol and the gas brought into contact with the sample, in which the free SO_2 is enriched and oxidized to SO_3, and the latter detd. as above. Error: ±10-16%. For detn. of fixed and free SO_2 in the same sample, remove the free SO_2 first and collect it in I soln. Then treat the latter and the sample residue separately by the benzidine method. This analysis circumvents many disadvantages of the standard gravimetric and volumetric methods and yields in samples contg. up to 0.5 mg. of fixed SO_2 sufficiently accurate results.

T. Leanes

ASM-SLA METALLURGICAL LITERATU

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

12

Luminescence analysis for determination of quality of fresh or cooked fish. A. A. Adamova and S. E. Spektor (Leningrad Food Hygiene Lab.). Gigiena i Sanit. 12, No. 4, 41-4(1947).—Examn., in ultraviolet light passed by a 300-400 mμ filter (Wood's light), of fish products for spoilage was studied. In fresh fish or unspoiled cooked fish the gills do not luminesce, the same being true of the eyes and muscle (the latter give a dull green-blue or at times a gray-yellow radiation). Spoiled fish shows bright canary yellow luminescence of muscle and the gills show a red luminescence. Good-quality frozen fish at times show orange luminescence spots. Spoilage of frozen fish is characterized by bright yellow or gray-yellow luminescence spots. The examn. should be coupled with other methods (phys. or chem.). G. M. Kosolapoff

COMMON ELEMENTS

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

SPEKTOR, S.Ye.; KANSHINA, N.F.

Thiamine content of food products in foci of endemic goiter. Vrach. delo no.8:127-128 Ag '60. (MIRA 13:9)

1. Kafedra gigiyeny pitaniya i kommunal'noy gigiyeny (zav. - prof. A.I. Stolmakova) L'vovskogo meditsinskogo instituta i Oblastnaya sanitarno-bakteriologicheskaya laboratoriya.

(UKRAINE, WESTERN--FOOD--ANALYSIS) (THIAMINE)
(UKRAINE, WESTERN--GOITER)

SPEKTOR, V.A.

Peritonitis consecutive to a stab wound of the buttocks penetrating into the abdominal cavity. Khirurgiia no.5:69-70 My '56. (MLRA 9:9)

(PERITONITIS, etiology and pathogenesis,
buttocks wds. penetrating into abdom. cavity (Rus))
(WOUNDS AND INJURIES,
buttocks, penetrating into abdom., causing peritonitis (Rus))
(BUTTOCKS, wounds and injuries,
penetrating into abdom. cavity, causing peritonitis (Rus))

SPEKTOR, V.A. (Moskva)

[redacted] Knife wound of the right atrium of the heart and the soft tissues of the head. Sov.med. 21 Supplement:15 '57. (MIRA 11:2)

(HEART--WOUNDS AND INJURIES)
(HEAD--WOUNDS AND INJURIES)

1. FRANTSEVICH, I. N.; VITENZON, S. I.; SPEKTOR, V. B.; BRANTSEVICH, V. R.

2. USSR (600)

4. Ukraine--Gas, Natural

7. Gaseous carbonization agents from natural gases of the Ukrainian S.S.R., Ukr. khim. zhur., 16, No. 4, 1950.

9. *Monthly List of Russian Accessions*, Library of Congress, April, 1953, Uncl.

SPEKTOR, V.B.

Neural complications in influenza A_2. Vrach.delo no.5:541-543 My '58 (MIRA 11:7)

1. Klinika nervnykh bolezney (zav. - zasl. deyatel' nauki, prof. A.S. Pentsik) Rizhskogo meditsinskogo insituta i nevrologicheskoye otdleniye pervoy Rizhskoy gorodskoy klinicheskoy bol'nitsy.
(INFLUENZA)
(NERVOUS SYSTEM--DISEASES)

SHUR, A.M.; SPEKTOR, V.I.; BOGDANOVSKAYA, T.A.

Synthesis of vinyl esters of some furancarboxylic acids. Izv. AN Mold. SSR no.10:81-85 '62. (MIRA 17:12)

86733
S/120/60/000/006/007/045
E032/E314

21.5200 (2816,1138,1565)

AUTHORS: Bonyushkin, Ye.K. and Spek~~tor, V.V.~~

TITLE: A Scintillation γ-spectrometer with a Control Channel

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No. 6, pp. 30 - 34

X

TEXT: A block diagram of the spectrometer is shown in Fig. 1. It consists of a CsI(Tl) crystal surrounded by a MgO reflector. The cylindrical crystal is in contact with two photomultipliers (one at each end). The output of one of the photomultipliers is fed into the "working channel" and the output of the other photomultiplier is fed into the "control channel". The working channel consists of a cathode follower, a linear amplifier and a shaping circuit and the control channel consists of a cathode follower, a linear amplifier and a single-channel pulse-height analyser. The outputs of the two channels are fed into a gate and the output of the gate is analysed by a 20-channel pulse-height analyser. The working principle of the spectrometer as a whole is as follows. The window of the single-channel pulse-height analyser in the

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S/120/60/000/006/007/045
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A Scintillation γ-spectrometer with a Control Channel

control channel defines the part of the γ-spectrometer which corresponds to the photo peak under investigation. Pulses from this analyser open the gate which transmits amplified and shaped pulses from the working channel and these are fed into the 20-channel pulse-height analyser at the end of the system. The shaping circuit is necessary in order to delay pulses leaving the linear amplifier in the working channel for a time corresponding to the delay in the single-channel analyser in the control channel. The shaping block produces rectangular pulses, whose amplitude is the same as that of the initial pulses. Since the amplitude distribution at the outputs of the two photomultipliers are independent, only those pulses will be transmitted by the gate which belong to the photo-peak under investigation, provided the position of the maximum of the photo-peak remains unaltered. This device can be used to separate photo-peaks in a complex spectrum and to detect weak γ activities on a background of strong radioactive contamination.

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S/120/60/000/006/007/045
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A Scintillation γ-spectrometer with a Control Channel

The resolution of the instrument is 12.5% at 0.663 MeV and 10.5% at 1.33 MeV. The efficiency of the spectrometer for γ-rays of 0.633 MeV is 1.3%. Fig. 9 shows a typical spectrum obtained for a mixture of Cs^{137} and Co^{58}. The γ activity of the Co^{58} component is 1/50 of the activity of Cs^{137}. The curve marked a was obtained without the control channel and Curve b with the control channel. A 5 V window was employed. As can be seen, the small γ activity due to Co^{58} is easily separated out. Acknowledgments are expressed to Yu.S. Zamyatnin for valuable suggestions and interest, to G.A. Vasil'yev and P.V. Topov for help with the electronics, and to Ye.M. Tursov for taking part in the measurements. There are 9 figures and 6 references: 4 Soviet and 2 English.

SUBMITTED: July 28, 1959

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Fragment Yields From U^{233} and Pu^{239} Fissions
Induced by Fast Neutrons

S/089/60/010/001/002/020
B006/B063

separated chemically, and their beta activity was measured. The mass distributions of fragments were determined for the irradiated specimens. The curves are basically symmetric, i. e., the minimum between A = 110 - 120 is flanked by two maxima at A = 90 - 100 and A = 135 - 145. The simple linear correlation between the difference Δm of the average masses of the heaviest and the lightest fragment and the atomic weight of the nucleus undergoing fission was independent of the neutron energy but dependent on whether A was even or odd:

$$\Delta m = 288 - 1.04\,A + \delta,\ \delta = \begin{cases} 0 & (\text{even } A) \\ \sim 2 & (\text{odd } A) \end{cases}.$$

A. A. Malinkin, Yu. A. Vasil'yev, and V. I. Shamarukhin are thanked for neutron irradiation of the specimens; P. N. Moskalev, N. V. Shuvanova, A. A. Yegorova, and K. N. Borozdina for chemical operations; and V. V. Zakatilov and L. N. Sorokina for assistance in physical measurements. Numerical results are tabulated. There are 5 figures, 1 table, and 12 references: 5 Soviet and 7 US.

SUBMITTED: April 16, 1960

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S/089/61/010/001/002/020
B006/B063

Выходы осколков деления U^{239} и Pu^{239}

Осколки 1	U^{233}		Pu^{239}	
	нейтроны спектра деления 2	нейтроны с энергией 14,5 *Мэв* 3	нейтроны спектра деления 2	нейтроны с энергией 14,5 *Мэв* 3
Sr^{90}	6,30±0,60	—	—	—
Mo^{99}	4,75±0,35	3,5±0,3	5,9±0,6	4,16±0,40
Ru^{103}	0,413±0,045	2,31±0,30	6,0±0,7	6,25±0,80
Ru^{106}	0,16±0,02	1,52±0,20	4,8±0,6	4,16±0,5
Ag^{111}	0,0837±0,008	1,22±0,12	0,55±0,06	1,46±0,14
Cd^{115}	0,052±0,006	0,98±0,18	0,09±0,01	1,23±0,10
$115_{\text{полн}}$	0,056±0,006	1,05±0,20	0,095±0,010	1,30±0,11
Te^{129m}	0,602±0,050	—	0,45±0,09	—
$129_{\text{полн}}$	1,57	—	1,17	—
Te^{132}	4,36±0,40	3,98±0,35	3,5±1,0	4,58±0,50
Cs^{136}	0,11	0,5	—	—
Cs^{137}	6,28±0,50	4,7±0,5	—	5,1±0,8
Ba^{140}	6,31±0,50	—	5,4±0,5	4,35±0,40
Ce^{141}	6,77±0,60	5,0±0,5	—	—

S/089/60/010/001/002/020
B006/B063

Legend to the Table: 1) Fragment, 2) the fission being induced by neutrons of the fission spectrum, 3) the fission being induced by 14.5-Mev neutrons.

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SPEKTOR, V.Ye.

Discharge of flushing water during the drilling of downcast holes.
Trudy Alt. GMNII AN Kazakh. SSR 15:112-114 '63. (MIRA 17:3)

SPEKTOR, Ya. I.

126-2-15/35

AUTHORS: Leont'yev, B. A., Palatnik, L. S., and Spektor, Ya. I.

TITLE: Investigation of the kinetics of step-wise transformation of super-cooled austenite. (Issledovaniye kinetiki stupenchatogo prevrashcheniya pereokhlazhdennogo austenita).

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol.5, No.2, pp. 304-317 (USSR)

ABSTRACT: At present no systematic data are available on the interaction of the products of austenite transformation obtained at various temperatures, on the influence of decomposition in one temperature range on the kinetics of transformation at another temperature. Detailed information is available only on the interaction of the products of intermediate and martensite transformation. Numerous authors (Refs.5-8) have pointed out that there is a lowering of the martensitic point after partial transformation of the austenite in the intermediate range. It was also pointed out (Refs.7-12) that there is an acceleration of the decomposition in the intermediate range after partial martensitic transformation. Information on other points is incomplete and sometimes contradictory. Hehemann, R.F., and Troiano, A.R. (Ref.13) detected a stabilization of the intermediate transformation

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126-2-15/35

Investigation of the kinetics of step-wise transformation of super-cooled austenite.

mechanism and the kinetics of decomposition and serve as a basis for developing more effective methods of heat treatment of steel. In this paper, thermomagnetic, metallographic and X-ray investigations are described relating to step-wise decomposition of austenite in the steels 55C2 and ШX15; main attention was paid to the intermediate transformation range. The chemical compositions of the two steels are as follows:

Steel 55C2: 0.53% C, 0.75% Mn, 1.71% Si, 0.019% S, 0.019% P, 0.23% Cr, 0.10% Ni;

" ШX15: 1.04% C, 0.29% Mn, 0.23% Si, 0.010% S, 0.020% P, 1.39% Cr, 0.16% Ni.

The graphs, Figs.1 and 2, p.305, give the diagrams of isothermal transformation for the two steels. The results of investigation of the kinetics of the step-wise transformation of austenite in the two steels are graphed in Figs.3-6. The values of the relative acceleration of the transformation, brought about by the preliminary decomposition in the other temperature range, defined by the formula:

$$100(v - v_o)/v_o, \%,$$

Card 3/7 where v_o is the maximum speed of the isothermal trans-

Investigation of the kinetics of step-wise transformation of super-cooled austenite.

an incubation period. The effect of acceleration increases with decreasing temperature of the intermediate decomposition and also with increasing temperature at which final transformation takes place. Decomposition of the austenite in the upper range of the intermediate interval in the Steel 55C2 brings about an appreciable slowing down of the intermediate transformation at low temperatures. If there is a considerable quantity of preliminarily decomposed austenite, the remaining part of the austenite stabilizes on lowering the temperature. The influence of such treatment is less pronounced in the case of the steel ШX15 and may lead to an acceleration or deceleration of the intermediate transformation at low temperatures, depending on the quantity of the preliminarily deformed decomposition products. A partial decomposition of the austenite in the intermediate and the martensitic ranges in both steels leads to a decrease in the speed of pearlitic transformation and this decrease will be the more pronounced the higher the percentage of the preliminary decomposition. The greatest slowing down is observed in the case of preliminary decomposition in the lower region of the intermediate range. Increase of the temperature of pearlitic transformation leads to a decrease of the slowing down effect (Steel ШХ15). Depending on the grade of the steel and the temperature of further transformation, the presence of pearlite may accelerate or decelerate the transformation in the intermediate range. The features of the kinetics of step-wise transformation cannot be satisfactorily explained by taking into consideration solely the changes in the concentration of the austenite and the germination effect of the preliminarily deformed transformation products. The basic cause of the influence of preliminary transformations in the intermediate and the martensitic ranges on the kinetics of transformation at other temperatures are the changes in the fine structure of the austenite accompanying the formation of a structure of the martensitic type. A convincing confirmation of this conclusion is the qualitative identity of the kinetics of step-wise transformation of austenite for the investigated steels, which differed in chemical

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Investigation of the kinetics of step-wise transformation of super-cooled austenite.

composition, structure and character of the carbon redistribution during the process of transformation. There are 11 figures, 3 tables and 24 references, 13 of which are Slavic.

SUBMITTED: June 11, 1956.

ASSOCIATION: Khar'kov Polytechnical Institute imeni V. I. Lenin. (Khar'kovskiy Politekhnicheskiy Institut imeni V.I.Lenina).

AVAILABLE: Library of Congress.

Card 7/7

LEONT'YEV, B.A.; SPEKTOR, Ya.I.

Use of the Akulov anisometer for studying stepwise decomposition of supercooled austenite in steel. Zav. lab. 23 no.3:325-326 '57.
(MIRA 10:6)

1. Khar'kovskiy politekhnicheskiy institut im. V.I. Lenina.
(Austenite)

SPEKTOR, YA. I.

129-1-10/14

AUTHORS: Yakovlev, V.A., Candidate of Technical Sciences and Ya.I. Spektor, Engineer.

TITLE: Induction Heating of Titanium-base Alloys Prior to Plastic Deformation (Induktsionnyy nagrev splavov na osnove titana pered plasticheskoy deformatsiyey)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, No.1, pp. 43 - 46 (USSR).

ABSTRACT: The advantage of induction heating of titanium alloy blanks prior to plastic deformation is the considerable reduction in the total heating time, thereby reducing the rate of burning off metal, the depth of the changed layer and the danger of crack formation during plastic deformation. This is of particular importance in the manufacture of thin, aircraft components. The authors of this paper aimed at studying certain relations which accompany induction heating of titanium-base alloys and elaborating recommendations relating to the technology of induction heating of such alloys prior to plastic deformation. The kinetics of induction heating of the alloy BT-2 was studied on specimens of 18 mm dia., 14 mm long. The tested alloy contained: 0.68% C, 2.55% Cr, 2.39% Al, 0.11% Fe, 0.418% O_2 and 0.0391% H_2. The heating current was supplied by

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Carc

minutes

1 050 °C minary heating

during which the reduced by

in the dangerous range temperature

ating titanium-base alloys of 800 to

efficient and economical the authors

of induction muffle

SOV-129-58-6-12/17

AUTHORS: Yakovlev, V. A. (Cand.Tech.Sci.), Spektor, Ya. I. (Engineer)

TITLE: Gas Corrosion of Titanium Base Alloys in the Case of Furnace and Induction Heating (Gazovaya korroziya splavov na osnove titana pri pechnom i induktsionnom nagreve)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 6, pp 52-56 (USSR)

ABSTRACT: The influence was investigated of the thermal parameters of heating on the kinetics of corrosion and the depth of the change layer in the case of heating in the furnace and induction heating. The kinetics of corrosion of the alloy VT2 was determined by the method of continuous weighing on an instrument designed by Prof. I. Sidorin. The specimens were first ground and washed in alcohol. The kinetics of corrosion was investigated in the temperature range 200-1000°C with temperature steps of 100°C; the weighing at the given temperature was effected over 20 minutes. Dry and humid air was used as the aggressive medium. Fig.1 gives the specific increase in weight of the alloy VT2 as a function of time in various media. Other results are entered in a table, p 54 and in graphs, Figs.2-9. It was established that during furnace heating the corrosion in humid air is more intensive at high temperatures (800-1000°C) than for

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SOV-129-58-6-12/17

Gas Corrosion of Titanium Base Alloys in the Case of Furnace and Induction Heating

dry air. At lower temperatures (about 800°C) the corrosion is less intensive in humid air due to the fact that the degree of dissociation of the water is still small and the vapours which are adsorbed on the surface of the specimen impede the access of oxygen molecules. In the case of furnace heating the corrosion speed in undried air increases sharply at 700°C. In the case of induction heating up to 1000°C, the specific weight increase is about ten times lower than in the case of furnace heating and the duration of the heating is about 200 times shorter. In the case of induction heating to 1200°C with a speed of 10 to 150 c/sec the depth of the changed layer is 5 to 6 times smaller than in the case of furnace heating. It was established that in the case of induction heating, the scale formation processes (temperature of beginning of appearance of an opaque film, temperature of flaking off of the film, etc.) are shifted

Card 2/3

SOV-129-58-6-12/17

Gas Corrosion of Titanium Base Alloys in the Case of Furnace and Induction Heating

upwards by about 200°C due to shortening of the heating times. A. P. Grachev and A. I. Pekarev participated in the experiments. There are 9 figures, 1 table and 4 Soviet references.

1. Titanium alloys - Corrosion 2. Titanium alloys - Induction heating
3. Titanium alloys - Corrosion 4. Gases - Corrosive effects

Card 3/3

25362
S/032/61/027/006/017/018
B124/B203

18.8400 (2808 1413, 1573)

AUTHORS: Spektor, Ya. I., Head

TITLE: Application of X-ray structural analysis at the Physical Laboratory of the "Dneprospetsstal'" Plant

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 6, 1961, 762 - 763

TEXT: At the Central Laboratory of the "Dneprospetsstal'" Plant, X-ray methods are used both for solving a number of problems in current production and for scientific investigations of new steel grades and technologically more convenient procedures. For an accurate determination of the end temperature in rolling of the ЭИ 437 (EI437) alloy, the recrystallization of this alloy was studied. The start of recrystallization in hammering in the temperature range of 930 - 1050°C was characterized by the appearance of punctiform interferences on the continuous (111) band. The working temperature at which the greatest number of spots in the X-ray pattern is obtained is taken as the temperature of the start of total recrystallization. The data obtained are graphically shown in Fig. 1. Optimum end temperature in rolling is

Card 1/4

SPEKTOR, Ya.I., kand.tekhn.nauk; GRACHEVA, A.P., inzh.

Some characteristics of cooling in a water-air mixture in induction hardening. Metalloved. i term. obr. met. no.3:38-44 Mr '62. (MIRA 15:2)

(Induction hardening)
(Cooling)

S/133/63/000/001/011/011
A054/A126

AUTHORS: Spektor, Ya. I., Entin, R. I.

TITLE: The notch toughness and the structure of 30 ХГСНА (30KhGSNA) steel after low-temperature annealing

PERIODICAL: Stal', 23 no. 1, 1963, 87 - 88

TEXT: At the zavod "Dneprospetsstal'" ("Dneprospetsstal'" Plant) it was observed that the large sections of 30KhGSNA steel display widely differing mechanical properties and that especially the notch toughness of the steel sections varies within wide margins (2.0 - 9.0 kgm/cm^2). The tests carried out (among others by magnetometry, pickling in a saturated picric acid solution at +60°C, etc.) showed the samples (hardened at 900°C, annealed at 200°C) to have a structure with strongly varying grain size. At room temperature the lower notch toughness is combined with a higher temperature limit of cold brittleness. Some samples also showed separation of ferrite at the border of austenite grains (appearing in the form of thin interlayers). (The kinetics of austenite decomposition were studied by L. I. Kogan and L. I. Yefremenko.) The presence of ferrite

Card 1/2

ACCESSION NR: AP4029009 S/0126/64/017/003/0474/0476

AUTHOR: Gorelik, S. S.; Spektor, Ya. I.; Spektor, E. N.

TITLE: On the character of the martensite grain texture after thermal mechanical treatment

SOURCE: Fizika metallov i metallovedeniye, vol. 17, no. 3, 1964, 474-476

TOPIC TAGS: Martensite, thermal mechanical treatment, 40KhSNA steel, EI-643 steel, VL-1 steel, 1Kh18N9T steel

ABSTRACT: The purpose of this paper is to establish the orientations and crystallographic relations between grains of austenite and the grain of martensite after tempering, in the case of the 40KhSNA, EI-643, and VL-1 steels after a low temperature thermal-mechanical treatment. All steels were deformed under identical conditions. A 70% deformation of a mashined hallow ingot was achieved with a cross sectional ball rolling method. The paper figures were constructed with the aid of a grain attachment to an x-ray installation by the "reflection" method. Before x-raying, samples of the ingot were submerged up to 0.1-0.2 mm in orthophosphoric acid. The results of the investigation are shown in polar figures and in x-rays of the two types of steel, 1Kh18N9T and 40KhSNA. The basic grain maximum of martensite, located

ACCESSION NR: AP4029009

analogously to austenite, are outlined by the $[11\bar{2}]$ $[110]$ orientation which is one of the α-iron characteristics. In a similar selection of orientations which correspond to the grain maximum, a structural conformity of directions in the lattice of austenite and martensite was observed resembling very closely the correlation described by Kurdyumov and Zaks; $[111]$ parallel to $[110]$ (Kurdyumov, G.; Zaks, G. Vestnik Metallopromy*shlennosti, 1930, vol. 9, no. 165). Orig. art. has: 2 figures

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Steel and Alloy Institute)

SUBMITTED: 01Jun63 DATE ACQ: 27Apr64 ENCL: 00

SUB CODE: ML NO REF SOV: 004 OTHER: 000

Card 2/2

ACCESSION NR: AP4034537 S/0020/64/155/005/1054/1057

AUTHOR: Spektor, Ya. I.; Sarrak, V. I.; Entin, R. I.

TITLE: Explanation of the effect of nickel on cold shortness of iron

SOURCE: AN SSSR. Doklady*, v. 155, no. 5, 1964, 1054-1057

TOPIC TAGS: iron cold shortness, nickel iron alloy, plastic deformation, internal friction, ductility brittleness transition

ABSTRACT: Alloying of commercial iron and construction steels with nickel considerably lowers the temperature of transition from a ductile to a brittle state in impact tests. The authors have investigated this phenomenon on iron with 0.03%C (MZh), with and without 3.4% Ni (ON4). The heat treatment was such that the grain size was the same in both materials. Impact tests were conducted in the temperature range from +100 to -196 C. Alloying lowered the brittleness temperature by about 30 C. Since the interaction between the interstitial atoms (carbon, in this case) and dislocations which cause brittleness is reflected in the amplitude dependence of internal friction; the authors determined the latter with a torsion pendulum. The critical amplitude which was found at 20 to 200C is considerably

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ACCESSION NR: AP4034537

lower in nickel iron. This shows that the interaction of dislocations with carbon are weaker, thus lowering the fixation of dislocations and favoring plastic deformation. Orig. art. has: 4 figures.

ASSOCIATION: Institut metallovedniya i fiziki metallov central'nogo naucho - issledovatel'skogo instituta chornoy metallurgii im. I. P. Bardina (Institute for Metallurgy and Physics of Metals of the Institute for Ferrous Metallurgy).

SUBMITTED: 06Nov63 DATE ACQ: 13May64 ENCL: 00

SUB CODE: [illegible], MM NO REF SOV: 005 OTHER: 007

Card 2/2

L 8646-65 EWT(m)/EWP(w)/T/EWP(k)/EWP(b) Pf-4 MJW/JD/HW

B

ACCESSION NR: AP4044136 S/0129/64/000/008/0029/0033

AUTHOR: Gorelik, S. S.; Spektor, Ya. I.; Spektor, E. N.; Konovalov, B. O.

TITLE: Inhomogeneity of the structure of steel tubes after thermomechanical treatment

18 18 18

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 8, 1964, 29-33

18

TOPIC TAGS: martensitic low alloy steel, 40KhSNA steel, steel thermomechanical treatment, treated steel structure, structure inhomogeneity, steel property

ABSTRACT: A study has been made of the structural changes along the cross section of high-strength tubes made of low-alloy 40KhSNA martensitic steel after low-temperature thermomechanical treatment (ntmo). The ntmo consisted of a 70% deformation in two-pass transverse ball-rolling, at 550C and subsequent oil quenching. It was found that the transverse rolling produces sharply varying degrees of deformation and structural change along the tube cross section. The outer metal

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L 8646-65

ACCESSION NR: AP4044136

layer, 0.15—0.2 mm thick, undergoes the greatest plastic deformation and, correspondingly, the highest strengthening in the austenitic condition and more pronounced formation of the deformation texture. In deeper layers, 0.3—0.4 mm from the surface, the strengthening and texture formation are less pronounced. The inhomogeneity of the metal flow along the cross section causes elastic stresses reaching 35 to 40 kg/mm^2. The conditions of deformation of the 40KhSNA-type steel in the austenitic condition in the region of subcritical temperatures (550C) cause a loss of carbon in the austenite of the outer layer, owing to precipitation of carbides during deformation, and, consequently, formation of carbon-poor martensite in subsequent quenching. As a result, this layer, most strengthened in the austenitic condition, is the least strengthened by quenching. The structural, but not the textural, inhomogeneity along the cross section can be partially decreased by an additional heat treatment. Orig. art. has: 3 figures.

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute for Steel and Alloys)

Card 2/3

L 8646-65

ACCESSION NR: AP4044136

SUBMITTED: 00 ATD PRESS: 3111 ENCL: 00

SUB CODE: MM, IE NO REF SOV: 003 OTHER: 001

Card 3/3

L 36624-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) Pf-4/Pad IJP(c)
ACCESSION NR: AP5002350 MJW/JD/HW S/0126/64/018/006/0915/0920

AUTHOR: Spektor, Ya. I.; Sarrak, V. I.; Entin, R. I.

TITLE: Tendency toward brittle fracture and the fine structure of steel

SOURCE: Fizika metallov i metallovedeniye, v. 18, no. 6, 1964, 915-920

TOPIC TAGS: brittle fracture, steel, OKh7 steel, ON4 steel, 30KhGSNA steel, fine structure, impact strength, ductile fracture, cold brittleness, grain boundary, crystal structure, hardening plastic deformation, ferrite grain size

ABSTRACT: The effect of changes in the fine structure of steel developed by plastic deformation and phase hardening on its inclination toward brittle fracture was studied. The critical temperature T_{crit} (at which impact strength started to fall rapidly) was determined from impact strength-temperature curves; the impact strength a_{kmax} during ductile fracture was determined; values of type II distortion $\Delta a/a$ and the extent of the range of coherent scattering D were determined from x-ray interference data on OKh7, ON4 and 30KhGSNA steels. T_{crit} was lower-

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L 36624-65

ACCESSION NR: AP5002350

ed as $\Delta a/a$ decreased; when the tempering temperature was raised and the growth of D increased noticeably, T_{crit} continued to fall and a_{kmax} started to increase. The greatest reduction in T_{crit} upon heating annealed and cold deformed alloys occurred at temper temperatures at which $\Delta a/a$ decreased and D increased. The threshold of cold brittleness of hardened and deformed iron alloys depends on internal stresses whose reduction leads to reduction in T_{crit}; this process starts to develop on heating well below the temperature at which D starts to increase. Tempering at higher temperatures reduced $\Delta a/a$ and D, and T_{crit}. It was concluded that the reversible and irreversible temper brittleness of steel was associated with the conditions of the grain boundaries and not with changes in the fine crystal structure of the grain. Impact strength at temperatures above the brittleness T_{crit} is determined by the state of the ferrite matrix of the steel, but other factors such as the presence of the carbide phase, its form, dispersity and distribution must be considered. The tendency toward brittle fracture can be reduced by reduction of the ferrite grain size and by alloying, e. g., with nickel. Orig. art. has: 8 figures

Card 2/3

L 36624-65

ACCESSION NR: AP5002350

ASSOCIATION: Institut metallovyedeniya i fiziki metallov TsNIIChERMET im. I. P. Bardina Zavod "Dneprospetsstal'" (Institute of Metal Science and Physics of Metals, Central Scientific Research Institute of Ferrous Metallurgy)

SUBMITTED: 22Feb64 ENCL: 00 SUB CODE: MM

NR REF SOV: 013 OTHER: 000

Card 3/3

SHEVCHENKO, Z.A.; FRANTSOV, V.P.; POTAPOVA, V.P.; SPEKTOR, Ya.I.

Nature of large nonmetallic inclusions in ball bearing electric steel. Stal' 25 no.5:452-454 My '65. (MIRA 18:6)

1. Zavod "Dneprospetsstal'".

ACC NR: AP6031838 (N) SOURCE CODE: UR/0129/66/000/007/0028/0033

AUTHOR: Petrovichev, N. P.; Barabanenkov, N. I.; Fomin, A. P.; Stroganov, G. B.; Gracheva, A. P.; Pozdnyakova, T. G.; Spektor, Ya. I.

ORG: none

TITLE: Utilizing the kinetic plasticity of stainless steel to reduce the warping of work parts during their heat treatment

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 7, 1966, 28-33

TOPIC TAGS: stainless steel, metal deformation, plasticity, phase transition, stress relaxation

ABSTRACT: During its phase transformations steel displays higher plasticity, and this effect my be exploited to reduce warping, particularly in intricate large-sized work parts of high-strength stainless steel (0.11-0.16% C, ≤ 1.0% Mn, 14-15.5% Cr, 4-5% Ni, 2.3-2.8% Mo, 0.06-0.1% N) whose structure, after a complete cycle of its heat treatment, consists of martensite, residual austenite and isolated carbides, and which tends to shrink 0.5% when quenched and expand 0.3% when subjected to subzero treatment. It is shown that the warping

Card 1/2 UDC: 620.191.33:669.15-194:669.24'26'23 of work parts made of steels of this kind can be reduced by means of: use of fastening attachments designed so that the shrinkage associated with phase transformations would proceed from thin to bulky sections of the work part, while expansion, by contrast, would proceed from bulky to thin sections; and oriented deformation designed to maximize residual deformation and hence also to maximize the degree of stress relaxation. Orig. art. has: 8 figures, 2 tables.

SUB CODE: 13, 11/ SUBM DATE: none/ ORIG REF: 006

L 10453-67 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6022506 SOURCE CODE: UR/0133/66/000/004/0323/0326

38

AUTHORS: Moshkevich, Ye. I. (Candidate of technical sciences); Gabuyev, G. Kh.; Smolyakov, V. F.; Frantsov, V. P.; Grayfer, Ye. Z.; Spektor, Ya. I.; Lavrent'yev, M. I. (Engineers); Yelinson, G. L. (Engineer) 31

ORG: none

TITLE: Manufacture of high-alloy steels with normalized phase composition

SOURCE: Stal', no. 4, 1966, 323-326

TOPIC TAGS: alloy steel, chromium steel alloy, high alloy steel / Kh16N9M2 alloy steel, OKh18N10 alloy steel, Kh18N9 alloy steel, 04Kh17N10M2 alloy steel

ABSTRACT: The possibility of obtaining stainless steels and intermediate type steels having a normalized phase composition (1 - 5% ferrite) under industrial conditions was studied. The experiments were carried out in electrical furnaces of 5—50 tons capacity, on charges consisting of fresh steel and scrap metal respectively. The α-phase content in the steels was maintained by chromium, nickel, and carbon additions. The phase composition was determined after the method of S. A. Iodkovskiy and N. N. Sashchin (Trudy TsNIITMASha No. 13 (Vyplavka stali i proizvodstvo stal'nykh otlivok), ONTI TsNIITMASh, 1960). The experimental results are presented in graphs and tables (see Fig. 1). It was found that alloying with

Card 1/3 UDC: 669.187.2

L 10453-67

ACC NR: AP6022506

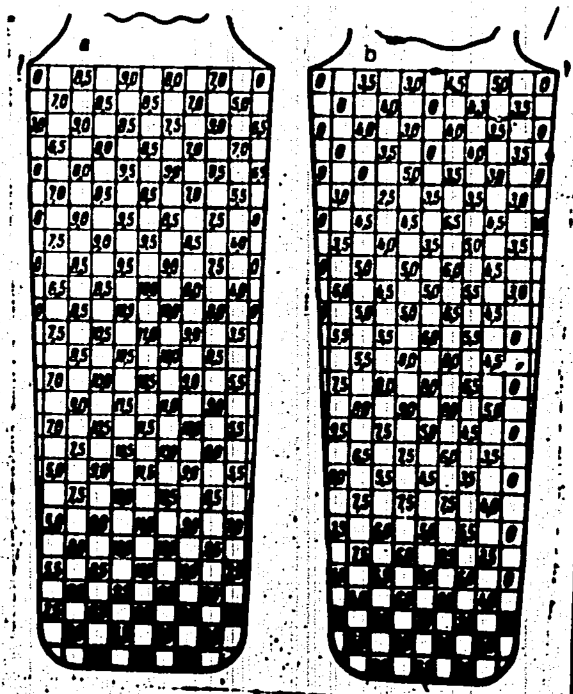

Fig. 1. Distribution of ferrite (%) in 2.8-ton ingots a and b of steel 0Kh16N9M2. Initial composition of ingot (a) and (b) respectively: C - 0.06, 0.07%; Mn - 1.0, 1.24%; Si - 0.40, 0.18%; Cr - 15.46, 15.60%; Ni - 9.0, 9.04%

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L 10453-67

ACC NR: AP6022506

6

Al-Ni as recommended by P. I. Melikhov, A. N. Boyarinova, i dr. (Stal', 1964, No. 4) was unnecessary. All specimens smelted had satisfactory mechanical and technological properties. N. N. Sashchin, V. S. Dub, P. M. Grashchenkov, I. A. Barmotin, and others took part in the experiments. Orig. art. has: 2 tables and 1 graph.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 004

Card 3/3 bmo

SPEKTOR, Ya. N.

[redacted]

The second prize (imeni N. A. Minkevich) was awarded to Candidate of Technical Sciences V. A. Yakovlev, Engineers Ya. N. Spektor and K. A. Makashev for the paper "New Heat Treatment Technology for Tubular Components of a Comples Geometrical Shape Using Induction Heating for the Hardening Process".

Results of the 1958 Competition for Obtaining imeni D. K. Chernov and imeni N. A. Minkevich Prizes, Metallovedeniye i termicheskaya obrabotka metallov, 1959, No. 6, pp 62-64

[illegible]

ZUBKO, A.M.; SPEKTOR, Ye.A.

Graphitization of carbon-containing substances. Dokl. AN SSSR 114 no.6:1239-1241 Je '57. (MIRA 10:9)

1. Institut metallovedeniya i fiziki metallov TSentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii.
(Graphite)

KASAVINA, B.S.; SPEKTOR, Ye.B.

Free amino acids of the bone marrow and changes in them uncer the effect of X-ray irradiation. Med.rad. 1 no.3:72-80 My-Je '56.
(MIRA 9:10)

1. Iz biokhimicheskoy laboratorii TSentral'nogo instituta travmatologii i ortopedii (dir. - chlen-korrespondent AMN SSSR prof. N.N. Priorov) Ministerstva zdravookhraneniya SSSR.

(BONE MARROW, metab.
free amino acids, eff. of x-irradiation in rats)
(AMINO ACIDS, metab.
bone marrow, eff. of x-irradiation in rats)
(ROENTGEN RAYS, eff.
on amino acids in bone marrow of rats)

SPEKTOR, Yu.D., mladshiy nauchnyy sotrudnik

Respiratory metabolism of Dictyocaulus filaria. Trudy VIGIS 10:
250-254 '63. (MIRA 17:9)

SPEKTOR, Ye.M.; KANER, B.L.

Activity of the section for industrial safety of the Central Administration of the D.I.Mendeleev All-Union Chemical Society. Zhur.VKHO 8 no.1:110-111 '63. (MIRA 16:4)
(Chemical societies) (Industrial safety)

SPEKTOR, Ye. S.

"Methods of Measuring Temperatures in Vacuum Melting" lecture given at the International Metallurgists' Conference, Moscow 26-30 June 56

Source CS-3,302,240, 11 Jan 57.

SPEKTOR, YE. S., MORACHEVSKIY, B. and RYAZANTSEV, V. I.

"Method and insturment for determining the heat-physical characteristics of materials without taking tests."

Report presented at the 1st All-Union Conference on Heat- and Mass- Exchange, Minsk, BSSR, 5-9 June 1961

SPEKTOR, Ye. Z.

*Structure of Molten Tin, Bismuth, and Lead. A. I. Danilova, V. I. Danilov, and E. Z. Spektor (*Doklady Akad. Nauk S.S.S.R.*, 1952, 82, (4), 601–[illegible])—(In Russian). Cf. D. and Radčenko, *Zhur. Eksper. Teoret. Fiziki*, 1937, 7, 1163; *M.A.*, 5, 678. The atomic distribution curves for the molten metals were obtained by X-ray investigation, using monochromatic radiation. The curves for Sn and Bi agreed with those found by other workers, but that for Pb differed from the curve obtained by Hendus (*Z. Naturforsch.*, 1947, [A], 2, 505; *M.A.*, 17, 433). The first max. in the curve for Sn ranged from 2·5 to 4·5 Å., in which fell the 10 nearest neighbouring atoms in the crystal lattice; the area under the first max. also corresponded to 10 atoms. The second max. was at 6·4 Å. In the case of Bi, the position of the first max. agreed well with the two nearest co-ordination spheres in the Bi crystal. The area under the first max. was 7–7·5 units, whereas the first and second co-ordination spheres contained 6 atoms. The second and third max. also corresponded to series of co-ordination spheres in the crystal of solid Bi, but were somewhat displaced in the direction of closer packing. With molten Pb, the positions of the first three max. corresponded well with the radii of the first three co-ordination spheres in the Pb crystal, except for a slight displacement of the first max. in the direction of greater radius. The area under the first max. was 11 units, which (considering the accuracy of the detn.) agrees with the co-ordination number of 12 for solid Pb. Thus, the similarity between the packing in the solid and liq. states is greater for Pb than for Bi and Sn, i.e. the similarity will probably be greatest for those metals which have the closest packing in the solid state at high temp. —G. V. E. T.

SPEKTOR YE. Z.

USSR/Engineering - X-ray analysis

Card 1/1 Pub. 22 - 17/40

Authors : Zubko, A. M., and Spector, E. Z.

Title : Roentgenographical study of structural changes in furnace coke

Periodical : Dok. AN SSSR 99/2, 251-253, Nov 11, 1954

Abstract : Experiments with furnace coke are described. Thr purpose of the experiments was to determine the nature of coke structural changes which take place in open-hearth furnaces with time. Coke samples were taken from various levels of an open-hearth furnace and subjected to the x-ray analysis. The results are presented in the form of graphs and roentgeno-grams. Five references; 3-USSR (1942-1953). Illustrations; graph.

Institution : The Institute of Metallurgy and Physics of Metals of the TsNIIChM (Central Scientific Research Institute of Ferrous Metals

Presented by: Academician Kurdyumov, June 22, 1954

Spektor, Ye. Z.

ZUBKO, A.M., kand.fiz.-mat.nauk; SPEKTOR, Ye.Z.

X-ray investigation of cokes and coals; coke structure in the blast furnace. Probl. matalloved. i fiz. met. no.4:77-86 '55. (MIRA 11:4)
(Coke) (X rays--Industrial applications)

SPEKTOR, Ye.Z.

DANILOV, Vitaliy Ivanovich, professor, doktor fiziko-matematicheskikh nauk, laureat Stalinskoy premii; KURDYUMOV, G.V., akademik, redaktor; DANILOVA, A.I., redaktor; ZUBKO, A.M., redaktor; KAMENETSKAYA, D.S., redaktor; LASHKO, A.S., redaktor; OVSIYENKO, D.Ye., redaktor; SKRYSHEVSKIY, A.F., redaktor; SPEKTOR, Ye.Z., redaktor; KAZANTSEV, B.A., redaktor izdatel'stva; RAKHLINA, N.P., tekhnicheskiy redaktor

[Structure and crystallization of liquids; selected articles] Stroenie i kristallizatsiia zhidkosti; izbrannye stat'i. Pod red. G.V.Kurdiumova. Kiev, Izd-vo Akademii nauk UkSSR, 1956. 566 p. (MLRA 9:10)

1. Deystvitel'nyy chlen AN USSR (for Danilov)
(Liquids) (Crystallization)

Spektor, Ye. Z.,

137-58-1-1512

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 201 (USSR)

AUTHOR: Spektor, Ye. Z.

TITLE: X-ray Studies of Melt Structures (Rentgenograficheskoye issledovaniye struktury rasplavov)

PERIODICAL: V sb.: Fiz.-khim. osnovy proiz-va stali. Moscow, AN SSSR, 1957, pp 257-262. Diskuss., pp 332-334

ABSTRACT: Analyses of the results of x-ray investigations of the structures of melts lead to the conclusion that maintenance of the character of molecular packing during smelting is common to all or at least to the overwhelming majority of metals, and in any case for those metals that do not have exceptionally loose packing in the solid phase. In the case of melts of intermetallic compounds, the lattices of which are not of molecular type in the solid phase, it is to be expected that in melts as well they will possess ordered structures without formation of molecules of chemical compounds. In the case of fused salts, the interatomic distances at temperatures close to the melting point are determined by the same forces as in solid state.

V. G.

Card 1/1

1. Intermetallic compounds--Structural analysis
2. X-ray--Applications

137-58-6-11463

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 30 (USSR)

AUTHOR: Spektor, Ye.Z.

TITLE: Temperature Measurement in Vacuum Smelting Heats (Izmereniye temperatur pri vakuumnykh plavkakh)

PERIODICAL: V sb.: Issled. po zharoprochn. splavam. Vol 2. Moscow, AN SSSR, 1957, pp 285-289

ABSTRACT: The results of measurements of the temperature of refractory metals in vacuum-smelting furnaces by means of a TsEP-2 color-sensitive photoelectric pyrometer employing the "red-blue" ratio are presented. Cr alloys were used for the measurements; determination was also made of the m.p. of Cr in BeO crucibles in an Ar atmosphere, the pyrometer being sighted on the bottom of a BeO dome immersed in the metal. The results of the temperature measurements confirm the desirability of using the color-sensitive pyrometer under these conditions.

M.L.

1. Vacuum furnaces--Equipment 2. Temperature --Measurement 3. Photoelectric pyrometers--Applications 4. Photelectric pyrometers--Test results

Card 1/1

20-114-6-28/54

AUTHORS: Zubko, A. M. and Spektor, Ye. Z.

TITLE: Concerning the Problem of Graphitization of Carbonaceous Substances (K voprosu o grafitizatsii uglerodistykh veshchestv)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 114, Nr 6, pp. 1239-1241 (USSR)

ABSTRACT: In coke samples which were burned at 17oo - 18oo°C narrow lines situated at angles of 22°35' (intensive), 33° (weak) and 41°45' (intensive) occur in radiograms. As is seen in table 1 and figure 1, the position of these lines neither agrees with the lines of the α-modification of graphite nor with those of β-graphite. The nearness of these lines to the position of the graphite-lines caused some research-men to consider them as belonging to a special graphite modification (references 1 - 5). Then the authors give additional data from own investigations of the graphitization of the substances mentioned in the title. It was interesting to determine the nature of the non-carbon-diffraction lines which become visible in coke after a temperature of 17oo - 18oo°C. Pure cane carbon alone and with small additions of iron oxide and silic dioxide were burned. The results

Card 1/2

AUTHOR: Gulyayev, B.B. SOV/24-58-4-37/39

TITLE: Conference on Crystallisation of Metals (Soveshchaniye po kristallizatsii metallov)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 4, pp 153 - 155 (USSR)

ABSTRACT: This conference was held at the Institut mashinovedeniya AN SSSR (Institute of Mechanical Engineering of the Ac.Sc. USSR) on June 28-31, 1958. About 400 people participated and the participants included specialists in the fields of foundry, metallurgy, crystallography, physics, welding, heat, physical chemistry, mathematical physics and other related subjects. In addition to Soviet participants, foreign visitors included Professor D. Czikl (East Germany) and N.I. Chvorinov (Czechoslovakia). This conference on crystallisation of metals was the fourth conference relating to the general problem of the theory of foundry processes.

Conference on Crystallisation of Metals SOV/24-58-4-37/39

General Problems of Crystallisation of Metals

Member of the Ac.Sc. Belorussian SSR N.N. Sirota, in his paper "On the Mechanism of the Process of Crystallisation", proposed a general physico-mathematical theory on germination and the growth of crystals and described its application to problems of crystallisation of metals.

Corresponding Member of the Ac.Sc. Ukrainian SSR K.P. Bunin and Yu.N. Taran, in their paper "Eutectic Crystallisation of Grey Irons", considered the features of formation of graphite separations in eutectic alloys from the point of view of the general theory of crystallisation of iron.

B.Ya. Lyubov, in his paper "Calculation of the Speed of Solidification of Metals in Large Volumes", proposed a synthesis of the molecular-kinetic and of the thermal theories of crystallisation of metallic castings.

A.G. Spasskiy, in the paper "Fundamental Factors Influencing the Structure of Castings" and M.V. Mal'tsev in the paper "Methods of Improving the Quality of Cast Metal", described results of their investigations of crystallisation of castings from various alloys and considered methods of controlling such processes.

I.L. Mirkin dealt with the influence of fluctuations in the concentration on the formation of crystallisation nuclei and formation of crystals in complex alloys.

G.P. Ivantsev gave a review of the present concepts on germination and the growth of crystals. O.N. Magnitskiy, A.A. Demidova and B.B. Gulyayev considered the influence of the speed of crystallisation and the composition of the alloys on the quantitative characteristics of the structure and the mechanical properties of castings of the systems iron-carbon and aluminium-silicon. D.S. Kamenetskaya, N.P. Bakhsanova and Ya.E. Spektor dealt with the results of investigation of the kinetics of crystallisation of iron and its alloys. G.F. Balandin proposed a mathematical theory of formation of the structure of castings and applied it for elucidating the features of crystallisation of iron. Ya.V. Grechnyy dealt with the features of crystallisation of binary alloys of various types.

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24(8) **PHASE I BOOK EXPLOITATION** SOV/2117

Soveshchaniye po eksperimental'noy tekhnike i metodam vysokotemperaturnykh issledovaniy, 1956

Eksperimental'naya tekhnika i metody issledovaniy pri vysokikh temperaturakh; trudy soveshchaniya (Experimental Techniques and Methods of Investigation at High Temperatures; Transactions of the Conference on Experimental Techniques and Methods of Investigation at High Temperatures) Moscow, AN SSSR, 1959. 789 p. (Series: Akademiya nauk SSSR. Institut metallurgii. Komissiya po fiziko-khimicheskim osnovam proizvodstva stali) 2,200 copies printed.

Resp. Ed.: A.M. Samarin, Corresponding Member, USSR Academy of Sciences; Ed. of Publishing House: A.L. Bankvitser.

PURPOSE: This book is intended for metallurgists and metallurgical engineers.

COVERAGE: This collection of scientific papers is divided into six parts: 1) thermodynamic activity and kinetics of high-temperature processes 2) constitution diagram studies 3) physical properties of liquid metals and slags 4) new analytical methods and production of pure metals 5) pyrometry, and 6) general questions. For more specific coverage, see Table of Contents.

V. PYROMETRY

Svet, D.Ya. Modern Radiation Pyrometry 546

Rudnitskiy, A.A. Thermocouples for Measuring High Temperatures 563
Several types of thermocouples were investigated for their suitability for use at high temperatures (mostly in the 1700-2500° C range). The most satisfactory types were found to be those of platinum and rhodium alloys (for use in the 1300-1850° C range). An advantage of these thermocouples is the stability of their thermoelectric characteristics in an oxidizing atmosphere, an inert-gas atmosphere, and in vacuum; a reducing atmosphere, however, is harmful to this type of thermocouple.

Svet, D.Ya., and Ye. S. Lipin. TsEP-2M Automatic Photoelectric Optical Pyrometer 574

Spektor, Ye. Z. Temperature Measurement in Vacuum Melting 580

Medzhiborzhskiy, M.Ya. Use of Submerged Thermocouples for Determining the Rise in Temperature of the Open-hearth Bath During the Blowing of Compressed Air Through the Metal 586
Measurements of metal temperatures with a thermocouple made it possible to show that in the blowing of compressed air through the open-hearth bath the rise in temperature is more rapid than in ordinary boiling and takes place in proportion to the acceleration in the rate of carbon combustion. The oxidation of carbon during the blast takes place primarily as a result of the oxygen absorbed by the bath from the atmosphere in the furnace (heated to about 1700 °C), which assures a substantial heat effect and a sharp rise in the temperature of the metal. With a blast of 12-15 m³/min and a pressure of 3.5-4.0 atm (gauge) the rate of increase in the temperature of the metal amounts to about 3°/min.

5

Spektor, Ye. Z.

S/137/62/000/005/071/150
A006/A101

AUTHORS: Kamenetskaya, D.S., Rakhmanova, E. P., Spektor, Ye. Z., Shiryayev, V. I.

TITLE: On the mechanism of the aluminum effect upon the nucleation of crystallization centers in liquid iron

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 3, abstract 5I16 ("Sb. tr. In-t metalloved. i fiz. metallov Tsentr. n.-i. in-ta chernoy metallurgii", 1959, v. 6, 63-75)

TEXT: The authors investigated the effect of low Al admixtures upon Fe-crystallization. Electrolytic Fe (99.76%) and Fe of direct reduction (99.86%) were used as initial materials. It is shown that liquid original Fe, that does not contain active non-soluble impurities and surface active admixtures, is easily supercooled by 260 - 270°C below the melting point. It is supposed that under the described conditions the crystallization centers arise spontaneously. Addition of 0.03% Al eliminates supercooling almost completely. In repeated remelting, supercooling did not increase. On the basis of this fact and also because of the sharp refining of ingot grains, the authors conclude that Al

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acts as a surface-active admixture which reduces the development of crystallization nuclei. The assumption on the effect of Al as an deoxidizer is disproved by the fact that in the experiments with the addition of Al_2O_3 particles, crystallization set in at a greater supercooling than during the addition of Al metal. There are 20 references.

D. Ovsiyenko

[Abstracter's note: Complete translation]

ZUBKO, A.M., kand.fiz.mat.nauk; SPEKTOR, Ye.Z.

Method of quantitatively evaluating the graphitization of coke in blast furnaces. Probl.metalloved.i fiz.met. no.6:372-377 '59. (MIRA 12:8)

(Blast furnaces) (Coke)

S/137/61/000/012/007/149
A006/A101

AUTHOR: Spektor, Ye.Z.

TITLE: Experiences of using color pyrometers for measuring temperatures of vacuum melting

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 12, 1961, 14, abstract 12B87 ("Tr. in-tov Kom-ta standartov mer i izmerit. priborov pri Sov. Min. SSSR", 1960, no. 42 (102), 57 - 58)

TEXT: The photoelectronic color pyrometer ЦЭП-2 (TsEP-2) is employed to investigate crystallization processes and to control the heats in a vacuum at 10^{-1} to 10^{-4} mm Hg pressure and in argon atmosphere under 50 - 300 mm Hg pressure. Investigations were made with Fe, Ni, Cr; with Fe-Cr, ЖС-6 (ZhS-6), Л-114 (L-114), ЭИ-661 (EI-661) alloys, with transformer steel with various Si content, with СтХ-27 (StKh-27), 18ХНВА (18KhNVA) steels, and others. The temperature control during the melting process, based on the color temperature, made it possible to produce ingots, cast under optimum temperature conditions which were equal for a number of heats. Thus it was possible to investigate the effect of various factors on the structure and mechanical properties of the alloys being

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melted. As a result of investigating crystallization processes of the ingot with the aid of a color pyrometer, it was found that pure iron (of electrolytic and direct reduction) was easily supercooled by 150 - 200°C, and electrolytic nickel by 100 - 150°C. The same method is employed to investigate the crystallization process of 2-component alloys on Fe and Ni base, and the effect of small admixtures (Al, Cr) on crystallization of Fe. The author points to the necessity of revealing the effect exerted by the intermediate medium on a metal with high vapor tension.

V. Oparysheva

[Abstracter's note: Complete translation]

34748

S/020/62/142/003/015/027
B142/B138

18.7520

AUTHORS: Kamenetskaya, D. S., Rakhmanova, E. P., Spektor, Ye. Z.

TITLE: Crystallization of supercooled binary alloys

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 3, 1962, 584-586

TEXT: The crystallization characteristics of supercooled alloys were studied on systems forming a continuous series of solid solutions: Sb-Bi, Cu-Ni, Fe-Ni, Fe-Cr. The former two systems were studied most thoroughly; their phase diagrams show a wide gap between the liquidus (T_1) and solidus (T_s) curves. The mechanisms observed hold for all the systems investigated. The alloys were produced in refractory crucibles of Al_2O_3, quartz, or ZrO_2 in high-frequency vacuum furnaces. Electrolytic Fe, Ni, Cu, and Cr were used; Bi and Sb were refined by the zone melting. Thermal, metallographic, and X-ray diffraction analyses were made. For supercooling below T_s, the liquid metal had to be first superheated. The supercooling ranges are divided into three sections according to their

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cooling curves, macro- and microstructures, and X-ray diffraction patterns. These three sections approximately correspond with their different crystallization mechanisms (except for some shifts at low temperatures) to the following ranges of the phase diagram:

I: T_l - T_o; II: T_o - T_s; III: below T_s (considerable supercooling)

(T_l = liquidus curve, T_s = solidus curve, T_o = crystallization temperature).

Section I: On crystallization a solid phase is formed with a different composition from that of the liquid phase - diffusion process.

Section III: The crystallized solid phase has the same composition as the liquid one - "diffusionless" process .

Section II: The two processes are mixed: Part of the alloy crystallizes "diffusionless", and for thermodynamic reasons decomposes into the more stable, two-phase state. The rest crystallizes by the diffusion process. "Diffusionless" crystallization was achieved by supercoolings below T_s.

For 1:1 Cu-Ni alloy, e. g., where T_l = 1310°C, T_s = 1240°C, I is the supercooling range 10 - 30°C, II 40 - 100°C, and III 110 - 150°C. There are 4 figures and 8 references: 6 Soviet and 2 non-Soviet. The reference

S/126/63/015/002/029/033
E111/E151

AUTHORS: Khokhlov, S.F., and Spektor, Ye.Z.

TITLE: The possible use of X-ray diffraction in the examination of liquid refractory metals

PERIODICAL: Fizika metallov i metallovedeniye, v.15, no.2, 1963, 311-313

TEXT: The apparatus developed by the authors enables an X-ray scattering intensity chart to be prepared by examination of liquid metals at temperatures up to 1500-1600 °C. It consists (Fig.1) of levelling screws 11, an X-ray tube 13, slit 15 and lid 6. The slit and tube can be moved up and down independently and the radiation detector 5 can be moved by the mechanism 7 attached to the lid. A mechanism 9 for moving the specimens vertically is attached to the inside of the lid. The water-cooled casing of 150 mm internal diameter is provided with a slot 4 closed by a strip which can withstand heating to 200 °C with a vacuum of 10^{-4} mm Hg in the chamber. The specimen is heated by an inductor 12 which is connected to a high-frequency generator. With the sharp-focus tube a single slit 0.4-0.6 mm situated 90 mm

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S/126/63/015/002/029/033
E111/E151

The possible use of X-ray ...

from the center of the camera was adequate. Good agreement with published results was obtained for mercury and liquid tin, and good intensity curves were recorded with liquid silver and nickel. There are 2 figures.

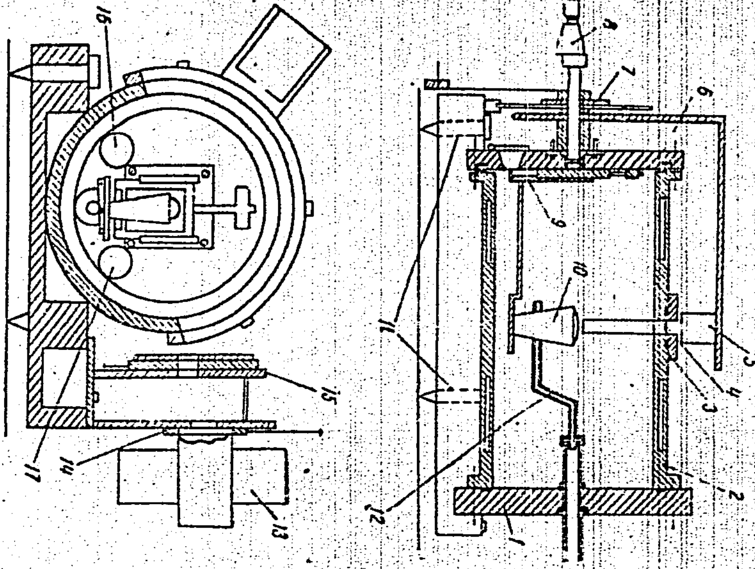
ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIIChM (Institute of Science of Metals and Physics of Metals TsNIIChM)

SUBMITTED: June 12, 1962

Card 2/3

The possible use of X-ray ... S/126/63/015/002/029/033
E111/E151

Fig. 1



Card 3/3

ACCESSION NR: AP4040378 S/0185/64/009/004/0440/0444

AUTHOR: Spektor, Ye. Z.; Khokhlov, S. F.

TITLE: Device for X-Ray Investigation of Molten Refractory Metals /Paper presented at the Shestoye Soveshchaniye po Fizike Zhidkogo Sostoyaniya Veshchestva, Sixth Conference on the Physics of the Liquid State of Matter, Kiev, 1963./

SOURCE: Ukrayins'ky*y fizy*chny*y zhurnal, v. 9, no. 4, 1964, 440-444

TOPIC TAGS: X-ray, x-ray camera, molten metal, molten metal x-ray spectrum, nickel x-ray spectrum, x-ray tube BSV-3, URS-50I device, low-noise photomultiplier FEU-35, optical pyrometer MOP-48, induction heater LGP-30

TRANSLATION: A device is described for the x-ray analysis of molten refractory metals. The device schematic, with annotated key, is presented in Figure 1 of Enclosure 01. A high-frequency induction heater is used to melt the metal, and an optical pyrometer measures the temperature of the x-irradiated spot. This device is a modification of an earlier one built by the authors (FMM, 15, No. 2, 311, 1963). The intensity curve of x-rays (iron source) scattered from

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ACCESSION NR: AP4040378

liquid nickel is presented /without grid/. Orig. art. has 3 figures.

ASSOCIATION: TsNIIChM, Institut Metallovedeniya i Fiziki Metallov, Moscow (TsNIIChM, Institute of Metallography and Metal Physics)

SUBMITTED: 00	DATE ACQ: 13May64	ENCL: 03
SUB CODE, MM	NO REF SOV: 001	OTHER: 001

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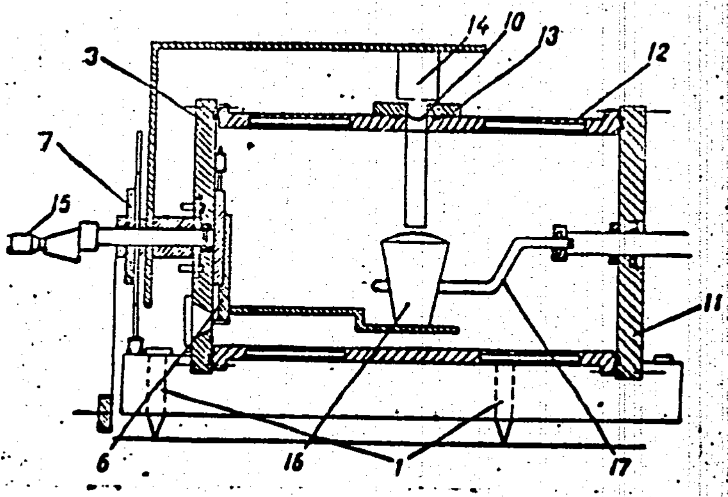
Card 2/5

ACCESSION NR: AP4040378

ENCL: 01



Card 3/5

ACCESSION NR: AP4040378 ENCL: 02

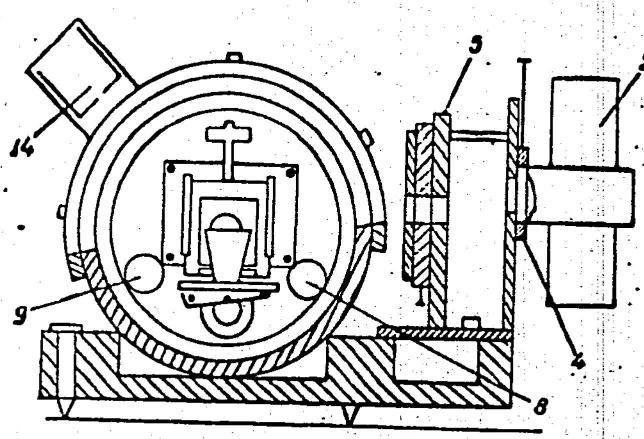


FIGURE 1. Device Schematic - X-ray Camera for Obtaining Spectra of Molten Refractory Metals

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ACCESSION NR: AP4040378 ENCL: 03

Legend:
1 -- positioning screws
2 -- x-ray tube (BSV-3)
3 -- metal cover
4 -- tube tilting assembly (angles of incidence from 5 to 25°)
5 -- slit (from URS-50I instrument)
6 -- mechanism for moving the sample (eccentric drive)
7 -- counter drive mechanism
8 -- inlet for filling the camera with helium
9 -- inlet for vacuum gauge (thermocouple gauge)
10 -- polyamide film
11 -- plexiglass cover
12 -- camera casing (water fooled, 150 mm i.d.)
13 -- photographic shutter
14 -- scintillation counter (using low-noise photomultiplier FEU-35)
15 -- pyrometer (MOP-48; can focus on same spot that reflects x-rays)
16 --crucible (Al_2O_3)
17 -- induction heater (LGP-30).

Card 5/5

SPEKTOR, Ye.Z.; KHOKHLOV, S.F.

Plant for X-ray diffraction studies of liquid high-melting metals. Ukr. fiz. zhur. 9 no.4:440-444 Ap '64. (MIRA 17:8)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii imeni I.P. Bardina i Institut metallovedeniya i fiziki metallov, Moskva.

SPEKTOR, Ye.Z.; KHOKHLOV, S.F.

Interpretation of the intensity curves of radiation scattered by a substance in the liquid state. Fiz. met. i metalloved. 18 no.3: 451-454 S '64. (MIRA 17:11)

L 61514-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) Pad IJP(c) JD/HW

ACCESSION NR: AP5011753

UR/0126/65/019/004/0583/0591 43
66.065.53

AUTHOR: Kamenetskaya, D. S.; Rakhmanova, E. P.; Spektor, Ye. Z. 42

TITLE: Some crystallization characteristics of supercooled binary alloys B

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 4, 1965, 583-591

TOPIC TAGS: supercooled melt, crystallization, cryogenic effect 14

ABSTRACT: Some peculiarities of crystallization of binary alloys were studied at various supercooling temperatures with comparatively low rates of heat elimination. Thermal, metallographic, and x-ray methods are used as well as subsequent heat treatment of alloys which crystallize at various initial supercooling temperatures. Alloys which form a continuous series of solid solutions during crystallization were studied: Fe-Cr, Fe-Ni, Cu-Ni and Sb-Bi. The degree of purity of the initial metals: Fe--99.86%, Cu--99.9%, Ni--99.99%, Cr--99.8%, Sb--99.99% and Bi--99.99%. The smelting method and temperature measurement were based on methods described by the authors in a previous work (*DAN SSSR*, 1962, 142, No. 3, 584). Temperature measurement error was ±10°. Rate of cooling varied within limits of 1-7 deg/sec. The

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ACCESSION NR: AP5011753

tests indicated that the structure and degree of heterogeneity of the solid solution depends on the supercooling temperature at which crystallization begins. It was also found that the temperature region below liquidus may be divided into three intervals in which the crystallization process, resultant structure and intragrain liquation have their own characteristic peculiarities. At rather high initial supercooling temperatures crystallization of a solid solution of the initial composition may be observed depending on the nature of the alloy and its concentration. Orig. art. has: 7 figures, 1 table.

ASSOCIATION: Institut metallofiziki TsNIIChERMET im. I. P. Bardina (Institute of Physics of Metals)

SUBMITTED: 06Apr64 ENCL: 00 SUB CODE: MM

NO REF SOV: 017 OTHER: 008

Card 2/2

KAMENETSKAYA, D.S.; RAKHMANOVA, E.P.; SPEKTOR, Ye.Z.

Certain characteristics of the crystallization of supercooled binary alloys. Fiz. met. i metalloved. 19 no.4:583-591 Ap '65.
(MIRA 18:5)

1. Institut metallofiziki TSentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii imeni Bardina.

SIGORSKIY, V.P.; SPEKTOR, Yu.I.

Analysis of parallel-T circuits. Nauch.zap. IMA AN URSR. Ser.avtom. i izm. tekh. 5:136-157 '55. (MLRA 9:10)

(Electric circuits)

BERKMAN, R.Ya.; SPEKTOR, Yu.I.

Selective amplifiers with parallel-T circuits. Nauch.zap. IMA AN URSR. Ser.avtom. i izm. tekh. 5:274-282 '55. (MLRA 9:10)

(Amplifiers, Electron-tube)

Spektor, Yu I.

PA - 3578

AUTHOR: MIKHAYLOVSKIY, V.N., SPEKTOR, Yu.I.

TITLE: On Co-ordination of the Second Harmonic Magnetic Amplifier Effected by a Load. (K voprosu soglasovaniya magnitnykh usiliteley tipa "vtoroy garmoniki" s nagruzkoy, Russian)

PERIODICAL: Avtomatika i Telemekhanika, 1957, Vol 18, Nr 6, pp 551 - 559 (U.S.S.R.)

ABSTRACT: This problem was solved for the first time by M.A.ROZENBLAT. Here the experiment of a further investigation of the problem is undertaken, starting from the condition of obtaining a maximum sensitivity of output. Output sensitivity of the amplifier is investigated for low initial signals, in which case the amplifier is assumed to be linear. Such a mode of operation is characteristic for the work of the amplifier in a scheme with an automatic compensation of the signal to be measured. The effect of the load type on the magnetic amplifier stability is determined and the area of instable performance is ascertained. The expressions obtained make it possible to co-ordinate the active load magnetic amplifier on the basis of finding the maximum power sensitivity under predetermined conditions of generation. The dependence of the power sensitivity of the active load magnetic amplifier on the amplitude of the generating field in the case of optimum co-ordination is defined.

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PA - 3578

On Co-ordination of the Second Harmonic Magnetic Amplifier Effected by a Load.

(6 illustrations and 4 Slavic references)

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED: 17.4.1956
AVAILABLE: Library of Congress

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